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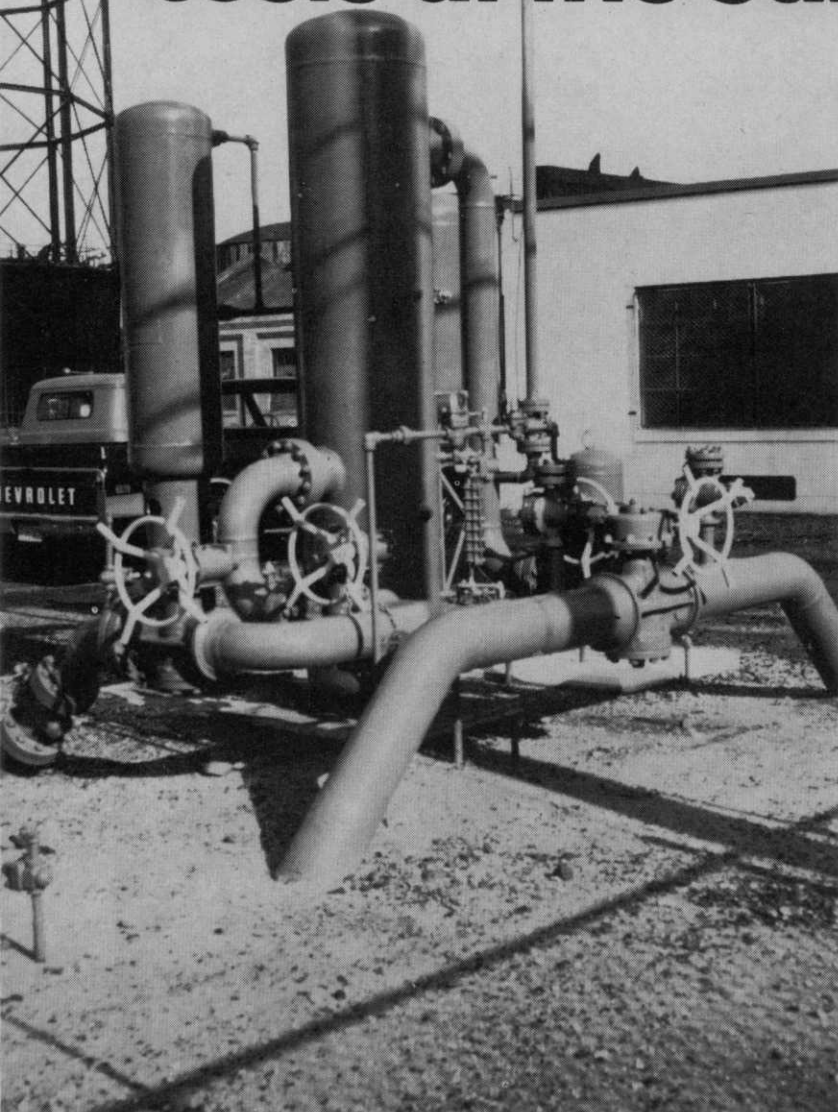
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Limb Lopper



For More Details Circle (110) on Reply Card

How to control weeds and costs at the same time.



In industrial applications, as shown here, Tandex controls weeds along fence lines, parking areas, ditches, pipelines, sidings, storage areas, tank farms, and sign posts.



Weeds are expensive.

They are everything from a fire hazard to a haven for unfriendly rodents.

They can corrode a fence line.

Make people sick.

Destroy the drainage efficiency of a railroad's right-of-way.

Millions of man-hours and thousands of machines are fighting the war against weeds.

A very expensive war.

Weeds hit some harder than others

The weed onslaught is particularly damaging to such operations as railroads, utilities, oil fields and highways, as well as general industry.

This message is especially addressed to operations like these—it is a message about Tandex®, the soil sterilant that can drastically cut the cost of weed control programs.

Tandex—what it is and what it does:

Tandex is a urea-carbamate compound that's demonstrated exceptional control over weeds, grasses, vines, brush and the hard-to-kill woody species.

Tandex does its weed-killing job by being absorbed through plant roots.

Once applied, Tandex can last a whole season, or longer. Yet it's relatively non-hazardous to man, animals or fish.

A distinct advantage of Tandex is its stability in the soil. Put another way, this means it has minimum lateral movement—which reduces the danger to nearby trees and shrubs you *don't* want to lose.

Tandex can be sprayed or applied in dry granular form. It can also be combined with other herbicides for special control situations.

For more information, write to Industrial Chemicals Dept., Niagara Chemical Division, FMC Corporation, Middleport, New York 14105.

Tandex®

Herbicide

It gets to the root of weed problems

Industrial Chemicals Dept.,
Niagara Chemical Division,
Middleport, New York 14105
Tandex® is a registered trademark
of FMC Corporation.



BULLISH (from page 25)

Payne of Michigan State University says that in comparing 64 bluegrass varieties, Baron rated in the upper third (2.3 on a 1-10 scale). Merion, a standard of sod growers, rated only slightly lower at 2.5. One other commercial variety and a couple of experimental hybrids rated higher.

Dr. J. L. Eggens, Ontario Agricultural College, Guelph, summarized his findings in the **Turfgrass Variety Trials 1968-1970**. Over seventy varieties were evaluated for hardiness, color, density, texture, disease resistance, and vigor. Four replicates were made and all grasses were mowed at 1½ inches. Monthly ratings from April through November were made on a 0 lowest to 10 highest scale.

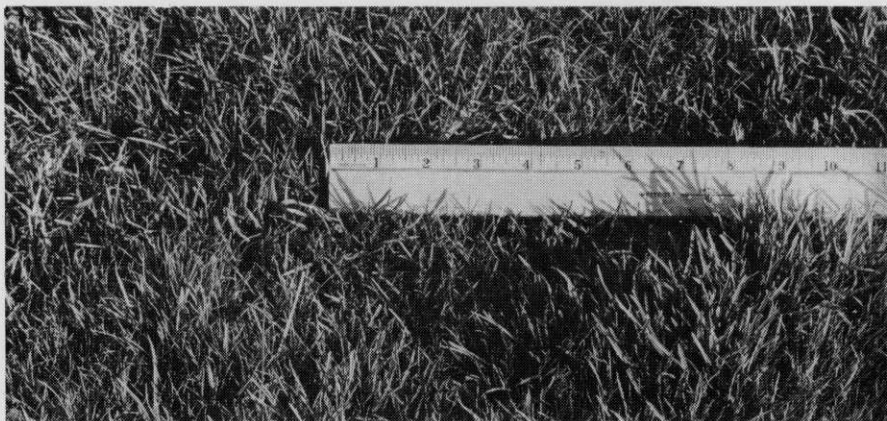
For the 1968 period, Baron averaged 7.1. The following year the average was 6.3. The average for all other leading bluegrass varieties was 5.3. Less than 15 percent of the trials scored as high as 6.0.

In another trial at the University of Rhode Island, Dr. C. R. Skogley reported that Baron plantings were considered to be an excellent new variety. Trials since summer of 1966 have consistently performed well. Skogley said that Baron resembles Merion in many respects but seems less subject to dollarspot and less demanding of fertilization. Stripe smut and leafspot incidence has been low.

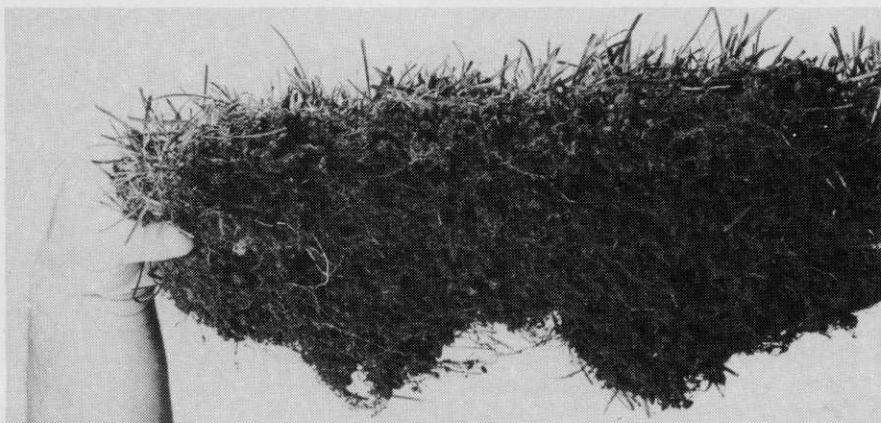
One reason for its acceptance among superintendents is performance on the course. Baron grows slowly. This means fewer mowings. This bluegrass can be mowed as low as three-fourths inch without damage. There appears to be an interlocking of the sturdy grass blades to form a strong sod surface. On fairways and tees, golf balls are not buried.

Superintendents are now looking for turf varieties that hold color throughout a longer playing season. Baron has deep coloring and to a large degree retains much of this coloring during the winter season. Reports from Germany indicate that Baron greens up ahead of other leading varieties in the spring.

Currently, Baron has been granted a U.S. patent. Loft Seed Company, exclusive agent for Baron in this country, and Barenbrug intend to insure the market by all legal means that only blue tag certified seed free of *Poa annua* and bentgrass be sold. Indications are that there will be a fine, economical seed crop in the production year ahead.



Baron sod grows fast. This sod is only six weeks old from seeding.



Tough root-rhizome system of Baron sod only a few months after seeding.





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Elanco's dependable herbicides control crabgrass and other annual weedgrasses in turf areas. They also stop most annual weeds and grasses around trees, shrubs and flowers. Used as directed, they'll stop these weeds as they germinate, all season long.

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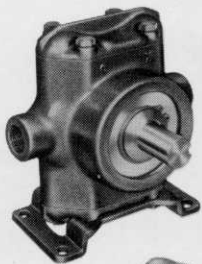


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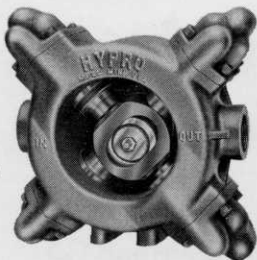
Hypro Pumps for applying weed and turf chemicals

PISTON PUMPS



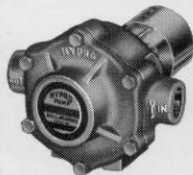
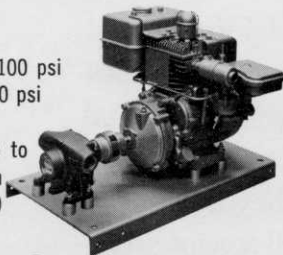
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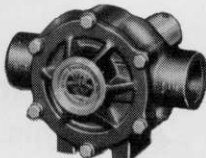


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SEARCH (from page 19)

will allow more leaf surface for the production of carbohydrates.

Red or Chewings Fescue are generally used to maintain turf under trees. *Poa trivialis* can be used with some success but is better adapted to moist conditions, such as the north side of buildings. Kentucky Bluegrass varieties are generally not considered to be tolerant to even moderate shade conditions.

When fescues are used in combination with bluegrasses to establish turf in shade, each kind of grass tends to dominate where conditions are best for its survival growth. Fine fescues will become dominant under dry, shady conditions; *Poa trivialis* where moist shade is predominant and Kentucky Bluegrasses where sunlight is not limited.

The problem to be faced then is the segregation of plant type and the lack of gradual transition from shade to sun. The thin, wire-like blades of fine fescues and the relatively wide blades of Kentucky Bluegrass most often cause very distinct and abrupt transitions from sun to full shade, a quality not altogether desirable.

The need for sod-forming grasses adapted to shady conditions has long been recognized by companies such as Northrup, King & Co. A portion of their breeding and evaluation program on turfgrasses is directed toward reaching this objective. New varieties are screened for shade tolerance. Those that pass initial screenings are further tested.

Howard Kaerwer, chief turf agronomist at Northrup King, realizes the differences in light quality which occur under trees and other forms of shade. He recently tested new and established varieties in a series of three tests: turf trials in full sunlight, under a Saran shade screen and under a natural tree canopy. The agronomist currently has over 500 different grasses planted under natural shade conditions at Northrup King's trial grounds in Eden Prairie, Minn.

To establish grasses under these test conditions, four-inch plugs of mature sod, grown in full sunlight, were transplanted early last spring before established trees had a chance to leaf out. In this way, the turf candidates could take advantage of enough sunlight to become well established before the much denser shade followed. Fertilizer was used moderately and the plots were watered only when required. Each plot was kept ap-

(continued on page 42)

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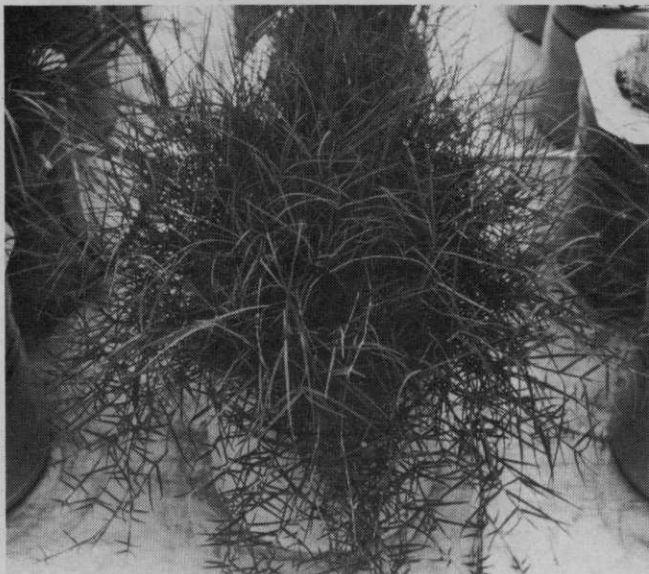


Figure 1, complete nutrient solution.



Figure 2, minus nitrogen.

NUTRITION (from page 14)

value of a good potassium level in the soil and plant cannot be over-emphasized.

The relative nutritional needs of the turf plant are easily determined when nutrient solution culture techniques are used. In a University of

Florida study, Tifgreen Bermudagrass was fed a solution containing all essential nutrient elements (figure 1). the N-P-K nutrient levels in grass leaf tissue are listed in Table I.

When nitrogen was withheld from the nutrient solution (figure 2),

there was a marked reduction in plant growth as reflected in lower dry weight yield as well as in the nitrogen level of the plant.

The smallest reduction in dry weight yield and in the phosphorus level in tissue occurred when phos-

(continued on page 38)

Arborist Assn. Offers Expanded Home Study Course

The National Arborist Association is now offering an expanded Home Study Program to members and non-members.

The program consists of an educational study course designed to provide professional arborists and their staff members with increased technical and practical proficiency.

Originally compiled by the Forestry Department faculty members of Michigan State University, the course consists of two series of eight individual study sessions each.

Subjects for the first series include: General Introduction to Commercial Arboriculture, Anatomy and Physiology of Trees, Soils, Pruning of Shade and Ornamental Trees (two sessions), Identification and Selection of Trees, Fertilizing and Watering Shade and Ornamental Trees.

The second series of the HSP includes such subjects as: Diagnosis of Shade and Ornamental Tree Problems, Non-Parasitic Injuries of Shade and Ornamental Trees, Insect Problems of Shade and Ornamental Trees, Disease Problems of Shade

and Ornamental Trees, Pollution Damage to Trees and Ornamental Plants, Spraying Techniques for Shade and Ornamental Trees, Bracing, Cabling and Tree Surgery of Shade and Ornamental Trees, Safety Equipment Care and Maintenance—Shade and Ornamental Trees.

HSP non-member enrollment fees are \$75 per enrollee for each series of eight sessions, while costs for NAA firms are \$50 per HSP recipient.

For enrollment applications and any other information concerning the HSP, please circle (719) on the reply card.

Phase II Guidelines For Nurserymen

Phase II economic stabilization guidelines are now available for nurserymen.

Under the new regulations, retailers must post in their retail outlets a 22" by 28" sign indicating the base prices for 40 Phase II-covered items having the highest dollar sales volume or which account for 50% of total sales. Base prices are calcu-

lated as highest prices charged customers during the freeze base period of July 16 to August 14, 1971.

The regulations also specify that no retailer may raise his prices on any covered item until the sign showing his 40 base price products is displayed.

In calculating a possible price increase the retailer must abide by the regulations indicating a firm may not increase its prices beyond that amount which would bring its net profit rate before taxes (as a percentage of sales) to a level greater than that of the base period. (This base period is defined as the average of any two of the past three fiscal years of a firm, ending prior to August 15, 1971.) Within that range, a 2.5% price increase guideline was announced by the Price Commission in an attempt to reduce inflation to no more than 2 to 3% by the end of 1972.

Retailers are permitted to apply their customary percentage markups to the amount of the import surcharge (10%) paid on a product entering the United States.

Also, the Wage Board's 5.5% general wage and salary standard applies to a retailer's employees.

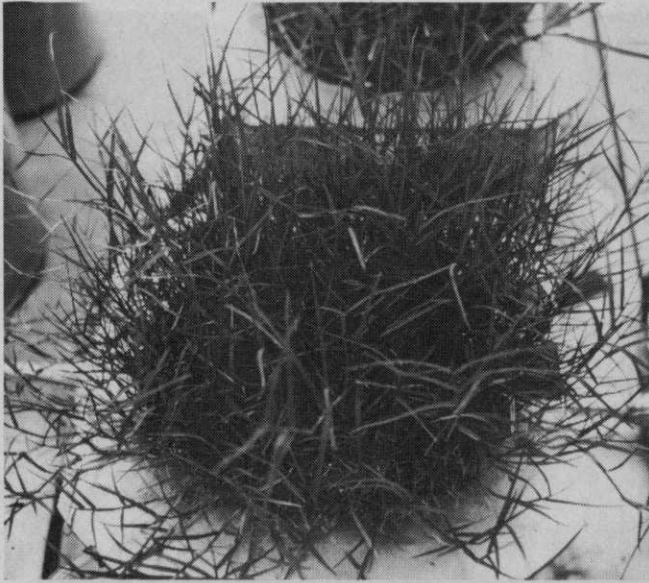


Figure 3, minus phosphorus.



Figure 4, minus potassium.

NUTRITION (from page 37)

phorus was omitted from the nutrient solution (figure 3).

Potassium's absence (figure 4) from the nutrient solution caused a reduction in K tissue levels and in dry weight.

When N, P, and K (figure 5) were

all removed the dry weight yield was nearly the same as when only nitrogen was removed indicating a high dependence on nitrogen for vegetative growth.

This study indicated that when one required nutrient element is omitted from a fertilizer program, there may

be a somewhat abnormal increase in other nutrients in the plant.

For example, when potassium was omitted nitrogen levels became higher (3.17% -N) than they were when the plant was fed optimum levels of all necessary nutrients

(continued on page 46)

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Chipper
makes you
more money
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Asplundh has been building chippers for over 25 years. Asplundh field crews put in over two million chipper hours a year. We know what the machine can do because we designed it for our own use, and we are the single largest user in the world. It has speeded brush removal time by 400% over the old tiresome hand method. And it has many advantages over other chippers too. Asplundh builds its machine to handle the bulkiest brush. Our chipper eats it up fast. And the faster you finish the job, the faster you can move to the next one. Chips are a valuable by-product used for fertilizer, mulch and stock bedding. One thing an Asplundh chipper won't do is give you a lot of maintenance headaches. Let us prove what our chipper will do. Write Asplundh for free literature or a demonstration, Asplundh Chipper Co., a division of Asplundh Tree Expert Co., 50 E. Hamilton Street, Chalfont, Pa. 18914.

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Check this no-nonsense comparison of lightweight chain saws!

FEATURE	PIONEER		HOMELITE			McCULLOCH		Skil 610	Remington Mighty Mite Auto	Poulan XXV
	Holiday II (1072)	2071	EZ	150 Auto	EZ-250	Mini Mac 6	Power Mac 6			
Starting	Automatic Easy "Arc"	Automatic Easy "Arc"	Manual Compression Release	No Comp. Release	Manual Compression Release	No Comp. Release	No Comp. Release	No Comp. Release	No Comp. Release	No Comp. Release
Noise @ 50 Ft.	80 Db(A)	75 Db(A)	78 Db(A)	80 Db(A)	77 Db(A)	88 Db(A)	80 Db(A)	79 Db(A)	75 Db(A)	87 Db(A)
Muffler	Directional No Screen	Baffle Plate & Spark Arrest- ing Screen	Baffle Plate No Screen	Baffle Plate No Screen	Baffle Plate No Screen	Straight Stack No Screen	Baffle Plate No Screen	Baffle Plate No Screen	Baffle Plate No Screen	Straight Stack No Screen
Displacement & Weight	3.14 cu. in. 9 lb. 8 oz.	3.2 cu. in. 9 lb. 10 oz.	2.3 cu. in. 9 lb. 7 oz.	2.65 cu. in. 9 lb. 1 oz.	2.5 cu. in. 10 lb. 8 oz.	1.7 cu. in. 6 lb. 12 oz.	2.2 cu. in. 7 lb. 4 oz.	2.2 cu. in. 6 lb. 7 oz.	2.1 cu. in. 6 lb. 8 oz.	2.2 cu. in. 8 lb. 9 oz.
Crank & Rod	3 Pce. 1 Pce.	3 Pce. 1 Pce.	1 Pce. 2 Pce.	1 Pce. 2 Pce.	1 Pce. 2 Pce.	1 Pce. 2 Pce.	1 Pce. 2 Pce.	1 Pce. 1 Pce.	1 Pce. 2 Pce.	1 Pce. 2 Pce.
Bar	14" Hard Nose	16" Roller Nose	16" Hard Nose	12" Hard Nose	15" Hard Nose	12" Hard Nose	12" Hard Nose	12" Hard Nose	12" Hard Nose	14" Hard Nose
Fuel Capacity	.90 pt.	.90 pt.	.91 pt.	1.0 pt.	.91 pt.	.71 pt.	.54 pt.	.62 pt.	.81 pt.	.63 pt.
Oil Capacity	.33 pt.	.33 pt.	.26 pt.	.50 pt.	.26 pt.	.21 pt.	.19 pt.	.24 pt.	.19 pt.	.45 pt.
Chain Oil Pump	Automatic	Automatic	Manual	Automatic Adjustable Delivery	Automatic & Manual	Manual	Automatic & Manual	Automatic & Manual	Automatic & Manual	Manual
Manufacturers Suggested Retail Price	149.95	164.95	184.95	149.95	224.95	129.95	199.95	179.95	159.95	129.95

*Crank Counterweight Only One Side



Feature for feature for feature, *nothing* can compare with our new Holiday II and our 2071. The facts speak for themselves. Case in point. Both our saws have exclusive "Easy-Arc" starting that gets the saw going with just a gentle pull. No one else can boast this feature.

Both saws are also equipped with the exclusive Sureguard Safety Chain.

And Pioneer lightweight chain saws are engineered by the same company who brought you the famous Lawn-Boy Power Mower and Johnson and Evinrude outboard motors. Superb engineering.



So check the chart then check with your Pioneer distributor.

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THE BROADLEAF DOUBLES MATCH!

We haven't found a broadleaf weed in any kind of grass that we can't control. We're still trying, but we feel we've found their match. It's called "Trimec" Turf Herbicide and it has a clean, solid swing.

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Whatever the lie, fairway or green, choose **GORDON'S FAIRWAY BROADLEAF HERBICIDE** and **BENTGRASS BROADLEAF HERBICIDE**. They both contain "Trimec" Turf Herbicide and you will be the winner of the broadleaf doubles match.



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"TRIMEC"®
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DISEASE CONTROL (from page 16)

control stripe smut and pink snow mold.

The third step concerns the application of Tersan SP in the fall. It has proven highly effective for control of snow mold (*Typhula*); and has also been outstanding for control of *Pythium* blight in any season. Application should be made early in November for snow mold.

Formerly, it was common for a snow mold chemical to be applied as late in the fall as possible, prior to snow. But the weatherman does not always cooperate and this has produced complications in application. Sometimes an unexpected snow would prevent an application. Tersan SP is low in solubility and can be applied earlier, while still lasting for a full season.

Disease control programs to date have primarily involved cool season grasses in the north for tees, greens and fairways. Reaction has been striking. A superintendent from one of the northern border states said: "Summertime diseases are not normally a big problem in our area, but snow mold is a problem every year. Last fall I used Tersan SP on my greens and tees and in the spring they were disease free. Even during the winter when my greens were free of snow they were not off-color."

A Midwest superintendent reported: "By following this program, I sprayed my greens and tees less and had better disease control and color than I have ever had before."

An Eastern superintendent said: "Early applications of Tersan LSR prevented *Helminthosporium* from being a problem and I saw no dollar-spot or large brown patch on my tees, greens or fairways. On greens and tees, I sprayed Tersan 1991 every 14 days, on fairways only three times the whole season."

Other programs for bentgrass courses in the south and for Bermudagrass greens that are overseeded have aroused similar enthusiasm. A superintendent in the south with bentgrass greens made this observation: "Following the disease control program large brown patch and dollar spot were no problem. When *Pythium* appeared Tersan SP stopped it right now."

A superintendent in the south with Bermudagrass greens commented: "Disease on Bermudagrass greens is seldom a major problem, but at overseeding, diseases can cause headaches. This year DuPont's suggestions solved the problem."

With response such as this, maintenance men concerned with indus-

trial and school or college lawns may find new ways to develop and maintain these essential areas. Knowledge developed on golf fairway maintenance is readily adapted to similar turfs in similar geographic areas.

Disease control can obviously mean many different things to different people. To a golf superintendent or a turf manager, control means an area of turf that has a healthy green color and is free of any blemishes. To a plant pathologist working on disease control, however, the same phrase means the absence of any problem that is of his particular concern.

When a new fungicide is being developed for widespread use, however, it is essential that work be done in all areas of the country. The objective is to learn if a product is effective on all grasses and under varying environmental conditions and turf management practices. Naturally, it is understood that the rates of use for a fungicide can and will vary for different diseases and different disease pressures. And it is clear that one fungicide will not control all diseases. In fact, as time goes on and new candidate chemicals appear, the more useful compounds seem to be those that are more specific.

Another element that becomes more obvious in the development of new turf chemicals is the importance of a safety factor related to the use of a chemical on the plant. As plants are weakened by disease and insects, they are somewhat more susceptible to injury by any compound. Therefore a safety factor is most important.

The ideal product would be one that controls disease at a low rate but would also be safe on the plant at any rate. This ideal may seldom be reached, but nonetheless study concerning rates is of such a detailed nature that when recommended rates are established and a product is labeled, that product should indeed be used at the recommended rates. The old story—read and heed the label—is still excellent advice.

Another aspect of new product development in turf compounds concerns their lasting qualities and possible hazard to users. A long-term residual characteristic may not always be what is needed, despite an apparent economy. Environmental requirements must receive major attention. Application safety and safety to humans and animals are other elements that must be carefully studied prior to product introduction, with directions for handling